REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

The Abstract has been amended to overcome the objection applied thereto.

Claims 22-24 have been amended to overcome the 35 USC 112, first and second, paragraph rejections and for clarity. Claims 25-30 have been newly added. Support for the subject matter of new claims 25-30 is provided for example in paragraph [0128] of the published specification.). (References herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

Claims 14, 16, 17, and 20-24 were rejected, under 35 USC §102(e), as being anticipated by Karjalainen (US 2002/0176438). Claims 15, 18, and 19 were rejected, under 35 USC §103(a), as being unpatentable over Karjalainen in view of Atarashi et al. (US 7,298,721). To the extent these rejections may be deemed applicable to the amended and new claims, the Applicants respectfully traverse as follows.

Claim 14 defines a radio base station apparatus that multiplexes a plurality of types of control information, for an uplink packet transmission, using a single spreading code and a plurality of symbol patterns that differ between the plurality of types of control information. The claimed subject matter supports distinguishing each type of control information by preset multiplexing rules so that spreading code resources may be conserved rather than used to distinguish the control information types (see specification, paragraph bridging pages 17 and 18.

The Office Action proposes that Karjalainen discloses, in Fig. 4 and paragraph [0021], the Applicants' claimed subject matter of multiplexing a plurality of types of control information,

for an uplink packet transmission, using a single spreading code and a plurality of symbol patterns that differ between the plurality of types of control information (see Office Action section 6, second paragraph).

However, the Applicants note that Karjalainen discloses, in Fig. 4, a radio transmitter that spreads each of a plurality of control channels with a different spreading code (see Karjalainen paragraph [0001] and page 5, left column, lines 6-22). After the spreading, the chips are scrambled (i.e., multiplied) by a base-station specific (i.e., fixed) scrambling code, modulated, and combined (i.e., multiplexed) in block 408 (see page 5, left column, lines 24-29, and page 6, right column, lines 5-6).

Thus, Karjalainen discloses spreading each channel with a different and orthogonal spreading code (see Karjalainen paragraph [0001]), scrambling each spread signal with the same scrambling code, modulating the scrambled and spread signals, and multiplexing the modulated signals. By contrast to Karjalainen's disclosure, the Applicants' claimed subject matter spreads each of a plurality of types of control information using the same spreading code and modulates each of the plurality of types of control information with a different symbol pattern.

The Office Action proposes that Karjalainen's scramble code corresponds to the claimed modulation patterns (see Office Action section 6, lines 9-11). If this view of Karjalainen were accepted, Karjalainen would disclose spreading each different type of control information with a different spreading code and modulating the spread signals with a single modulation pattern (i.e., a base-station specific (i.e., fixed) scrambling code), whereas the Applicants' claimed subject matter spreads each different type of control information with the same spreading code and

modulates each of the spread signals with a different modulation pattern. Thus, it is submitted that Karjalainen does not identically disclose the claimed subject matter.

Accordingly, the Applicants submit that Karjalainen does not anticipate the subject matter defined by claim 14. Independent claims 15-17, 20, and 22-24 similarly recite the above-mentioned subject matter distinguishing apparatus claim 14 from Karjalainen, although claims 22 and 23 do so with respect to methods and claims 20 and 23 do so with respect to an inverse operation (e.g., demultiplexing) of the multiplexing recited in claim 14. Therefore, it is submitted that the rejections applied to claims 15, 18, and 19 are obviated, and allowance of claims 14-17, 20, and 22-24 and all claims dependent therefrom is deemed to be warranted.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

A control information channel signal formation unit has a channel encoding section and a spreading section. The channel encoding section multiplexes a plurality of types of control information for a single communication terminal for use in uplink packet transmission, using different symbol patterns between a plurality of types of control information. The spreading section spreads symbols obtained by the channel encoding section using one spreading code.